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ABSTRACT

This document contains two essays: "Toward a High-Wage, High-Productivity Service Sector" by Lester Thurow; and "Service Sector Wages, Productivity and Job Creation in the U.S. and Other Countries" by Louise Waldstein. The first essay analyzes the recent and currrent U.S. economy under headings called Growth Nodes, Falling Productivity, and Lower Wages. Under the heading Looking Forward, likely future economic conditions are outlined. Endnotes and a 15-item bibliography complete this section. After an introduction, the second essay examines the nature of U.S. service sector growth by analyzing its most important components and by comparing U.S. performance to that of several sectors in other comparable industrialized countries (France, Germany, and Japan). Drawing on those analyses, the various examinations of service sector growth are assessed. References, the sources for the 27 tables used, and a 70-item bibliography conclude the document. (CML)

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Toward a High-Wage, High-Productivity Service Sector

Lester Thurow

Background Paper:

Service Sector Wages, Productivity and Job Creation In the U.S. and Other Countries

Louise Waldstein

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Toward a High-Wage, High-Productivity Service Sector

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Background Paper:

Service Sector Wages, Productivity and Job Creation In the US and Other Countries

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Toward a High-Wage, High-Productivity Service Sector

Lester Thurow

If one looks at employment statistics, the United States is well into the post-industrial era. Private services provided 88 percent of the net new jobs in the past ten years, and if government employment is included, the proportion rises to 98 percent.[1] To look just at employment, however, is to exaggerate the importance of services. Private services provided only 66 percent of the additions to GNP during the same period of time.[2]

Noting the dominance of services in employment growth reveals less than it seems to reveal.

Noting the dominance of services in employment growth, however, reveals less than it seems to reveal. Services are not an industry in the conventional sense of producing similar products or using similar technologies. Some services are high-tech (data processing); others are low-tech (dog grooming). Some generate a lot of R&D (health care); others generate none (real estate). Some use a lot of capital equipment (electrical utilities); others use very little (law firms). Some pay high wages (investment bankers); others pay low wages (cleaning services). Some services are mostly in the government sector (police); other quite similar services are in the private sector (security guards). Some are person-to-person activities (hair cutting); others are machine-to-machine activities (natural gas utilities). Some provide a lot of part-time jobs (fast food restaurants); others provide only full-time jobs (transportation services). Some services provide tangible products (electricity) and others even provide products (water) that can be stored.

Statistically services industries are what one might call "negative" industries. They are where everything that is not agriculture, mining, construction, or manufacturing is statistically classified. Substantively, this statistical fact means that almost all broad generalizations about services are misleading. To begin to understand what is going on in services, we must bundle them together into homogeneous groups.

Growth Nodes

Producer services, . . . retail trade . . . and health care . . . all have a common characteristic that is the mirror image of their rapid growth –falling productivity.

In the period from 1979 to 1986, most of the growth in service employment (91 percent) could be traced to the growth of three industries. Producer services, where the output is essentially sold to other business firms, accounted for 45 percent of the total employment gain. Retail trade generated 29 percent of the jobs. Health care produced another 17 percent.[3] As a result, it is necessary closely to examine these three industries to understand the growth in service employment.

While these three sectors produce very different services, they all have a common characteristic that is the

mirror image of their rapid growth—falling productivity. Over the past 20 years, productivity has fallen at the rate of one percent per year in producer services, at the rate of 0.1 percent per year in retail trade, and 0.8 percent per year in health care. With falling output per hour of work, employment has to rise rapidly to accommodate both the growth in demand within the industry and the declining efficiency with which each of these services is being delivered.

Employment has to rise rapidly to accommodate both the growth in demand . . . and the declining efficiency.

Two questions become central. Why is demand rapidly rising in these three areas? Why is productivity slowly falling in these three areas?

The demand questions are easily answered. Health care demand is up because of the interactions among an aging population, the development of expensive new technologies to treat the ailments of old age, and expanding health insurance coverage for the elderly.[4] Together, measured as a fraction of GNP, they have produced a doubling of national expenditures on health care in the past two decades.

Within retail trade, the growth in the restaurant business is directly traceable to working women. As hours of work rise, fewer and fewer meals are cooked at home. This in turn requires an expansion of the restaurant business. Within the rest of retail trade, the growth in demand is reflected not in total sales but in the gradual movement toward 24 hours per day, seven days per week shopping—a form of convenience that requires more sales personnel per dollar of sales.

Producers services break down into four roughly equal parts—financial services, commercial real estate, professional services, and labor subcontracting.

Why is demand rapidly rising in these three areas? Why is productivity slowly falling in these three areas?

The growth in financial services is easily explained by the telecommunication-computer revolution and the abolition of government capital controls. Together, they produced a world capital market with all of its opportunities for new activities such as Euro-currency purchases or sales. In addition, with more volatile interest rates and currency values, arbitrage and hedging activities (currency swaps, interest rate hedges, forward currency sales) that used to be rare have become common.

The growth of office space is a major element in the growth in the demand for real estate. Building services alone explain about one-third of the growth in this category—more than nine percent of total service employment growth. Within the entire service sector, building custodians, for example, were the occupation with the largest absolute increase in size.

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The office and retail building boom is easily explained by the rapid growth in retail trade and restaurants and in white-collar employment. Thirteen million new white-collar employees have been added to the economy in the past decade, and all of them have had a place to sit. Here again, however, employment growth is the mirror image of falling productivity. White-collar employment has been growing much faster than output (up 23 percent 1978 to 1986 while real output was growing only 18 percent) leading productivity to fall.[5]

White-collar employment has been growing much faster than output . . . leading productivity to fall.

Technology has also added another major outside supplier, computer software firms, to the traditional law, accounting, and management consulting firms that have long been providing producer services. Together these activities explain another one-third of the growth in producer services with most of the employment gains found in computer software and legal firms.

Finally, temporary help agencies or protective service agencies where employees actually work on the physical premises of other businesses, but are counted as service employees (because they are assigned to those duties by outside contractors that are classified as service firms) have grown very rapidly. These activities account for another one-sixth of the growth in producer services and about five percent of total service employment growth. In both cases the activity is growing rapidly, because it offers lower cost workers than could be hired if firms were to employ these workers directly.

Falling Productivity

Demand has been growing for services output, but falling or slow productivity growth is the real source of the observed rapid gains in employment.[6]

Demand has been growing for services output, but falling or slow productivity growth is the real source of the observed rapid gains in employment.

Annual Growth in Service Productivity

	1960s	1970s	1980s (1979–1987)
Industry			
Transportation	3.9%	2.9%	0.3%
Communications	4.1	6.5	2.1
Utilities	4.7	0.5	-1.8
Wholesale Trade	3.6	1.5	2.4
Retail Trade	3.1	1.6	1.3
Finance, Insurance, & Real Estate	2.2	0.7	-0.7
Other Services	3.3	0.9	-0.4

5

The problem of slow productivity growth in services is real—not a statistical artifact.

The easiest way to deal with the lack of productivity growth in services is to dismiss it as a measurement problem. Output is being underestimated and therefore measured productivity growth is too low. There are four reasons why this explanation is unsatisfactory.

(1) Productivity growth has consistently fallen in the last three decades. If the problem were a persistent underestimate of output growth, productivity growth should always have been low. However, productivity growth in services was quite high in the 1960s. As a result one has to explain why the measurement of output has gotten much worse over the past three decades and why there is an ever greater downward bias in the estimation of output over time. No such explanation exists.

(2) Productivity growth has fallen in service industries such as transportation, communications, and utilities where measurement is clearly not at issue. Utilities, for example, produce a homogenous output (kilowatts of electricity, cubic feet of gas, gallons of water) that is easily measured.

(3) Abroad, service productivity has been growing at a much faster rate. From 1973 to 1984 service productivity grew seven times as fast in Germany as it did in the United States (Ochel and Wegner, 1986). The Germans measure service output much as we do and if the problem were a systematic mismeasurement problem every country would have slow productivity growth. They don't.

(4) Even analysts such as Baily and Gordon (1988) that are willing to make very generous conjectures about measurement problems come to the conclusion that no more than one-third of the productivity slowdown in services can be traced to measurement problems.

If American service productivity had grown at the rate of West Germany, instead of producing 18.7 million service jobs between 1972 and 1983, the US would have produced only 3.6 million jobs.

The problem of slow productivity growth in services is real—not a statistical artifact.

If American service productivity had grown at the rate of West Germany, instead of producing 18.7 million service jobs between 1972 and 1983, the United States would have produced only 3.6 million jobs. Twelve million new service jobs that did appear would not have appeared.

This enormous difference can be traced to a number of factors. The foremost reason is that capital per worker has been growing twice as fast in Japan or West Germany as it has been in the United States.[7] The share of total investment going to services is somewhat smaller, but investment per worker is much larger since plant and equipment investments occupy a larger fraction of GNP and the service sector

is smaller. As a result, service industries have been able to employ more capital-intensive technologies abroad. The parking lot attendant so familiar in the United States, for example, is unknown in Sweden where he/she has been replaced by plastic cards. With automatic ticket selling machines, automatic ticket checking, and unattended lift loadings, Swiss ski resorts use many fewer workers than the equivalent American resorts.

Foreign willingness to invest in more capital-intensive technologies can be traced to a number of factors. Relative to the cost of capital, wages have gone up less in the United States than abroad. While the relative cost of labor to capital has gone up from 100 to 144 in the United States between 1964 and 1982, the relative cost of labor rose from 100 to 206 in West Germany and from 100 to 204 in Japan.[8] With a more rapid rise in general wages, firms in these countries simply had greater incentives to replace labor with capital.

With a more rapid rise in general wages, firms in [West Germany and Japan] simply had greater incentives to replace labor with capital.

These general incentives to move toward more capital-intensive forms of production are magnified in the service industries by the fact that service wages are much higher relative to manufacturing wages abroad than they are in the US. Whereas private service workers in the US are paid only 67 percent as much as those in manufacturing, in Japan they are paid 93 percent as much, and in Germany 85 percent as much.[9] The pattern is even more dramatic in finance where American financial workers received only 84 percent as much as manufacturing workers, while financial workers in Japan receive 134 percent as much and those in West Germany 122 percent as much. With lower wages in services, American firms had less need to use more capital than their foreign counterparts who were forced to pay wages more nearly equal to those in manufacturing.

If one asks why services wages are higher abroad, there are a number of explanations. Greater unionization and more emphasis on social solidarity in wage setting is one. More generous social welfare systems limit the individual's need to accept low-wage job offers. Foreign minimum wage laws mandate much higher wages than those required in the United States. In northern Europe minimum wages are often more than 80 percent of average wages while in the US they are less than one-third of average wages. Minimum wage laws are also enforced. In the US millions work below the legal minimum wage. As a result, the very low wages at which workers may be hired here are simply not to be found there.

The very low wages at which workers may be hired here are simply not to be found [abroad].

When making the trade off between more employees or

new capital equipment the American firms find more employees the cost minimizing route while the European or Japanese firms find new equipment the cost minimizing route. With this new investment come new technologies and rapid productivity growth, making it possible to produce more services with many fewer workers than would be necessary in the United States.

American firms find more employees the cost minimizing route while European or Japanese firms find new equipment the cost minimizing route.

But the capital that is employed in the United States may also be misemployed. Granted that investments per worker are higher abroad than they are here, investments here are still substantial and they don't seem to be paying off to the extent that one would expect.

Lower Wages

Much has been made of the fact that service jobs pay only two-thirds as much as manufacturing in the United States. While true, this fact is not as relevant as it seems. Low wages are not intrinsic to the service sector. Low wages are in fact not a characteristic of the service sector elsewhere. America could have a service sector that pays wages comparable to those in manufacturing.

There is a price to be paid for a high wage service sector, however. Employment growth is much slower. It is not possible to have the best of both worlds, high service wages and high service employment growth without subsidies.

Abroad, high service sector wages have led to the employment of different, more capital-intensive forms of service production, and with these new technologies has come rapid productivity growth. With rapid productivity growth, growing demands for service output can be accommodated with many fewer workers than would be necessary in the United States. The difference in employment growth in services is not to be found in the growth in demand for services. Demand patterns are roughly similar across countries. The differences in employment growth are to be found mostly in the patterns of productivity growth.

Low wages are not a characteristic of the service sector elsewhere. America could have a service sector that pays wages comparable to those in manufacturing.

In the United States, rising demand has led to the creation of millions of jobs with below average wages. With the average service worker much cheaper than he or she would be abroad and with the possibility of hiring some really cheap unskilled workers at very low minimum wages, the American producers of services have simply had no incentive to move to new, more productive, technologies. As a consequence, the service sector has had falling productivity and failed to generate as many high-wage jobs as the service sector in foreign countries.

The social merits of the two systems depend upon what the country wants. America has a low-wage problem heavily concentrated in services that is not found abroad. Most of Europe has a high unemployment problem produced by a lack of new services jobs that has no counterpart in the United States. Both of these problems, however, could have been alleviated with a faster rate of overall economic growth.

America has a low-wage problem heavily concentrated in services that is not found abroad.

Looking Forward

Looking back over the past decade, we see that manufacturing's share of total employment has shrunk, while that of services has grown. Looking ahead over the next decade, we may see the demand for services slow and the demand for American-made manufactured products accelerate.

The demand for health care workers is likely to slow down since we will not continue to let health care expenditures grow as a fraction of GNP as they have in the past. Attempts to slow demand in both the public and private sectors are now underway.

The growth in restaurants is also apt to come to an end. When most meals are eaten away from home, as they now are, it becomes impossible to sustain the current rate of growth. So too, there is a natural limit to longer shopping hours with their concomitant demand for more sales personnel, that is not far ahead of us.

In producer services, all of the main growth nodes can be expected to slow. Slower growth in restaurants and shopping centers means slower growth in real estate and building maintenance. White-collar employment cannot continue to grow at the pace of recent years and with that inevitable slowdown will come a downturn in office construction—something that already seems to be upon us.

The growth in financial services was essentially a one-shot adjustment to the creation of a world economy and a more volatile set of financial variables. When the adjustment is completed, employment growth slows down. In addition, because of the low American savings rate and one consequential higher cost of capital, American financial institutions are going to come under enormous competitive pressure in the next decade. Foreign financial institutions will simply be able to offer cheaper loans. Investors will also want to hold their funds in financial institutions where currency values are rising, not where they are falling.

In producer services, all of the main growth nodes can be expected to slow.

For all of these reasons, the loss of market share experienced by manufacturing in the past ten years is apt to be

The loss of market share experienced by manufacturing . . . is apt to be replicated by finance in the next ten years.

replicated by finance in the next ten years. Thus far, foreign financial institutions have had to wholesale their American loans through American retailers, but they will soon have bought or built their own retail network and be able to circumvent their American competitors. While many of the jobs associated with these foreign financial institutions will be in the United States, the headquarters jobs will be located at their home bases. As a result, the shift from American to foreign financial institutions is apt to mean a net loss of good jobs.

The rapid growth in law firms seems already to have come to an end and the growth in computer software firms is problematical. The rate of growth in computer hardware sales has already slowed and behind it must come a slowdown in software sales. No one knows, however, just how long the time lag is between a slowdown in hardware sales and a slowdown in software sales.

The growth in temporary workers to a great extent depends upon the course of social legislation. The big advantage of temporary workers to firms is not in the basic wages paid, but in the ability to avoid paying fringe benefits. Political movements are now afoot to extend fringe benefits to temporary or part-time workers. If these movements succeed, much of the competitive advantage of subcontracted labor from security agencies or temporary help agencies will disappear. If industrial employers need workers, they will go back to hiring them directly rather than indirectly.

In contrast, manufacturing is apt to be growing very rapidly in the next decade. This conclusion directly follows from the simple observation that any country must eventually balance its balance of payments. Eventually the dollar will fall to whatever level is necessary for the US to balance its international accounts. At that point, the US will either export more manufactured goods or replace imported manufactured goods with domestically-made alternatives.

The bottom line is the need to add four million new manufacturing jobs in the next few years to balance our balance of payments.

In 1987 the US ran a $171 billion trade deficit. This translates into a loss of 3.25 million manufacturing jobs (Duchin and Lange, 1988). In addition, at the end of 1987 the US's international debts were approaching $500 billion. This translates into another $40 billion in additional exports or fewer imports (about one million more manufacturing jobs) necessary to pay interest on that accumulated debt. The bottom line is the need to add four million new manufacturing jobs in the next few years to balance our balance of payments. These are jobs over and above those that will be added by general economic growth.

These jobs have to come in manufacturing since they can come in nothing else. Because of the green revolution, foreign markets for American agricultural goods have simply vanished. As a result the trade deficit cannot be solved with agricultural exports.

Service exports are both small ($58 billion in 1987 when earnings on foreign assets and military transactions are subtracted from the published totals) and equal to imports ($58 billion in 1987).[10] In fact, a service deficit may develop. American financial services are losing market share and our biggest net export sector within services is the sale of technology. Here decline is certain. The rest of the world is technologically catching up with the United States and as it does, the US will sell fewer technologies and buy more technologies.

As a result, the US is probably at a fundamental turning point. For the past 40 years, service employment has supplied the bulk of the new jobs in the US, and for the past ten years all of them. In the decade ahead this pattern is apt to change. Service employment growth should slow down and manufacturing employment, which has fallen in this decade, is likely to expand. The strategic question for American manufacturing is whether it can recapture the necessary market shares with high productivity, high quality products that permit high wages or whether the necessary market shares must be captured by a falling dollar and low wages relative to those that are paid in our principal industrial competitors.

The strategic question for the service industries is whether decelerating demand will lead to even lower wages or whether the competition for workers from manufacturing will lead to higher wages. If foreign experience is any guide, higher wages might be self-justifying in the sense that they would lead to more capital investment and higher productivity that could pay for those higher wages without having to raise the price of services.

The strategic question for American manufacturing is whether it can recapture the necessary market shares with high productivity, high quality products that permit high wages.

The strategic question for the service industries is whether decelerating demand will lead to even lower wages or whether the competition for workers from manufacturing will lead to higher wages.

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ENDNOTES

1. See Office of Management and Budget (1988, pp. 296, 297, 284).
2. See Bureau of Labor Statistics, (1981, p. 49) and (1988, p. 78).
3. See Bureau of Labor Statistics, (1988, p. 81) and Handler, (1988, p. 12).
4. See Dalton (1985, p. 133).
5. See Tschetter (1987, p. 31), and Roach (1987 and 1988).
6. See Bureau of Labor Statistics (1988 pp. 78, 83) and (1987).
7. See Green (1985, p. 77).
8. See OECD (1986a, p. 81).
9. See OECD (1986b Table 13, pp. 50, 78, 242).
10. See Sinai (1988, p. 18).

BACKGROUND PAPER:

Service Sector Wages, Productivity and Job Creation In the US and Other Countries

Louise Waldstein

INTRODUCTION

Since 1948 there has been a 282 percent increase in real output in the US service sector. Output has grown far faster than in other sectors of the economy, so that service sector output has increased from 58.9 percent of GNP to 67.2 percent in 1986. Forty-three million new full-time equivalent (FTE) jobs have been created in the service sector since 1948. As a result, employment in the service sector is up from 56.5 percent of total employment to 73.4 percent in 1986. While services generated 43 million new jobs, all other sectors combined created just 4.5 million new jobs over this 38 year period.

Wages in large parts of the service sector may be so low we risk creating an underclass of Americans who cannot support themselves and their families.

This swelling of the service sector is a source of both concern and ambivalence because:

1. Productivity in the bulk of the US service sector is stagnant or falling and lags behind equivalent sectors abroad. The services being produced may be needed, but they are being produced increasingly inefficiently. We are not getting the output we should for the resources (workers' time and investors' capital) used.

2. Our resources may be misallocated to provide services we do not need or that do not achieve desired results.

3. While jobs are being created, service employment has expanded in the lowest paid industries. Wages in large parts of the service sector may be so low we risk creating an underclass of Americans who cannot support themselves and their families. Diminished earning power for a significant portion of working Americans may be contributing to a decline in our standard of living.

4. Lagging service sector productivity has led to relatively higher prices for services, which make up an increasing share of purchases—thus reducing our overall standard of living.

This paper examines the nature of US service sector growth by analyzing its most important component sectors (Part 1) and by comparing US performance to that of the service sectors in other comparable industrialized countries (Part 2). Drawing on these analyses, the various explanations of service sector growth are assessed (Part 3). An appendix lists the sources for the data used in tables presented below.

PART 1: THE US SERVICE SECTOR

A First View of the Service Sector

Observing that the service sector as a whole is growing rapidly is not very informative because of the heterogeneity of the sector.

Only service sector output has grown faster than the economy overall. Other sectors such as agriculture, mining, and construction have shrunk in importance (Table 1).[1]

Table 1

Changes in the Structure of Output, 1948–86*

Sector	Shares of Total Output 1948	1986	Output Growth 1948–1986
Agriculture	5.5%	2.7%	63.8%
Mining	6.5	3.2	63.1
Construction	8.1	4.5	87.0
Manufacturing	21.5	21.9	240.5
Services	58.9	67.2	282.2
GNP	100.0	100.0	234.9

* 1982 dollars

The expansion of the service sector is even more impressive when examined in terms of employment, rather than output (Table 2).

Table 2

Changes in the Structure of Employment, 1948–86*

Sector	Shares of Total Employment 1948	1986	Net New Jobs 1948–1986 (000)
Agriculture	4.3%	1.6%	−587
Mining	2.1	0.8	−234
Construction	4.8	4.9	2,352
Manufacturing	32.3	19.4	2,959
Services	56.5	73.4	42,678
Total	100.0	100.0	

* Employment measured in full-time equivalents

Observing that the service sector as a whole is growing rapidly is not very informative because of the heterogeneity of the sector. The service sector is not an industry with a particular means of production or relationship to raw materials; it is not a group of similar industries with some common function or mar-

ket. As defined by our national statistical agencies, services are a residual—whatever is left when the other four sectors (manufacturing, mining, construction, and agriculture) are subtracted.

As a result, industries that are completely different from each other are included in the service sector. Some, such as data processing, are high-tech. Others, such as dog grooming, are not. Health care absorbs lots of research and development (R&D) expenditures; real estate management does not.[2] Both public government services as well as private market services are included in the service sector. Some service industries, such as electric utilities, are capital-intensive. Some, such as law, take little capital investment at all.[3]

Bowling alleys and computer consultants both are included in the industry "services."

Some service industries sell a tangible product that can be stored: water and gas utilities are counted as services. Information services, selling written reports to many customers, have products as tangible as farms selling produce, with similar problems of obsolescence. Other service industries fit the expected mold of selling a product that has to be "used" on the spot.

Disaggregating the Service Sector

The analysis in this paper relies on grouping private sector service industries into five categories. The first is "Producer Services" which includes those services which are intermediate products used to create other products. This grouping includes banking, data processing, advertising and insurance, and other services primarily sold to other businesses. The "Consumer Services" category includes those industries primarily providing services to consumers, such as recreation, dry cleaning, barbers, social work, hotels and restaurants, excluding health care. The "Trade" grouping includes the wholesale and retail trade industries involved in the distribution of goods. The remaining categories are "Health Care" and "Transportation/Communication," the latter including the infrastructure industries of transportation, communications, and utilities.

This disaggregation of services reveals the underlying changes in the US economy. Other aggregations, either into the broadest service producing sector or into traditional aggregate industries (one digit Standard Industrial Classification such as "finance, insurance, and real estate" and "services") mask the underlying trends by mixing industries as different as apples and oranges: bowling alleys and computer consultants both are included in the industry "services."

The accuracy of the division used here can be debated, especially as to whether a particular industry is used significantly more by businesses than by individuals. Similarly, the decision to group all intermediate services together rather than to try to identify services used solely by manufacturing companies can be challenged for failing to reveal important distinctions. However, this division is useful because it reveals a striking feature of US

Productivity has declined in precisely those parts of the service sector which have expanded the most in terms of output and employment.

service sector growth; much of the growth in services is now in producer services. To understand why the service sector is becoming dominant in the economy, we must shift our examination from the overall service sector to those areas where the growth is concentrated.

This paper is concerned with the growth of *private* sector services. Accordingly, the primary focus is on the segments of the private service sector that have experienced exceptional growth: producer services, trade, and health.

A Look Inside the US Service Sector[4]

In the last 20 years, most job creation has been in producer services, retail trade, and health care (Table 3). Of the 25.7 million new full-time equivalent jobs created between 1967 and 1985, 26.3 percent were in producer services; 22.9 percent in retail trade; 14.6 percent in health care; and only 11 percent in government and 8.8 percent in consumer services. As a result, the producer services, trade, and health industries have significantly expanded their share of total employment; these sectors now absorb an additional 12 percent of employment.

A different pattern of job creation prevailed from 1948 to 1967; of the 19.8 million new full-time equivalent jobs created, 36 percent were in government; 32.1 percent were in consumer services; and only 14.1 percent in producer services; 13.6 percent in retail trade, and 6.2 percent in health care.

Because this employment analysis is in terms of full-time equivalents (so that two half-time employees are considered one employee) these figures understate the number of individuals associated with these particular industries. This is because the presence and growth of part-time work has been concentrated in these growing service industries.

The producer services, retail and wholesale, trade and health care sectors have also significantly expanded their shares of output since 1967 (Table 3).

Labor productivity growth has been very low or declining in producer services, retail trade and health care (Table 4).[5] For instance, an employee in retail trade produced less output in 1985 than in 1967. Even more startling, an employee in producer services or in health care in 1985 produced less output than in 1948.

Better education, new technologies and increased capital inputs have enabled each worker to produce more in most sectors. For instance, the manufacturing, agriculture, mining, wholesale trade, and consumer services sectors have all shown increases in output per employee from 1948 to 1985. However, productivity has declined in precisely those parts of the service sector which have expanded the most in terms of output and employment. As these sectors get larger, this productivity problem will become even more important.

Table 3

Output and Employment Growth in Service Industries, 1948–85*

Sector	New Job Generation	
	1948–1967	1967–1985
	(000)	
Producer Services	2,802	6,765
Retail Trade	2,689	5,890
Health Care	1,231	3,754

	Shares of Total Employment			Change in Employment Shares	
	1948	1967	1985	1948–1967	1967–1985
Producer Services	4.6%	7.4%	12.6%	4.4%	4.9%
Retail Trade	12.2	12.6	15.4	2.0	3.0
Health Care	1.7	3.0	6.2	4.9	5.9
Consumer Services	9.9	9.4	9.2	1.5	1.7
Transp/Comm.	8.6	6.1	5.3	0.0	1.0
Wholesale Trade	5.4	5.3	5.9	1.7	2.0
Total	100.0	100.0	100.0	1.8	1.8

	Shares of Total Output			Change in Output Shares	
	1948	1967	1985	1948–1967	1967–1985
Producer Services	12.6%	16.1%	20.5%	5.2%	3.9%
Retail Trade	9.6	8.9	9.5	3.4	2.9
Health Care	2.2	2.8	4.3	5.7	5.1
Consumer Services	6.6	5.2	4.8	2.7	2.1
Transp/Comm.	8.9	7.9	8.4	3.2	3.4
Wholesale Trade	5.0	5.9	7.9	4.7	3.9
Total	100.0	100.0	100.0	3.8	2.6

* Employment measured in full-time equivalents

Table 4

Productivity Growth in Service Industries, 1948–85

Sector	Productivity Growth*	
	1948–1967	1967–1985
Producer Services	0.8%	–1.0%
Retail Trade	1.4	–0.1
Health Care	0.3	–0.8
Consumer Services	1.2	0.4
Transp/Comm.	3.2	2.4
Wholesale Trade	3.0	1.9
Total	2.0	0.8

* Annual Rate of Labor Productivity Growth

At least in part due to the declining productivity, service sector prices have risen faster than average.

At least in part due to declining productivity, service sector prices have risen faster than average, particularly relative to manufacturing prices (Table 5). The disparity between price increases in the service and manufacturing sectors grew even larger after 1967, precisely the time period when productivity in these sectors collapsed. These rising prices mean that the final service user ends up paying more for the same service output.

Table 5

Price Increases by Sector, 1948–85

	Price Level (1948 = 100)		
Sector	1948	1967	1985
Producer Services	100	176	543
Health Care	100	199	686
Consumer Services	100	187	616
Manufacturing	100	162	368
GNP	100	152	472

* Changes in the Implicit Price Deflator

Characteristics of US Service Jobs

The majority of service jobs created in the US are reputed to be worse than the manufacturing jobs they are replacing, either by paying lower wages or by being part-time jobs. In fact, service sector salaries do tend to be far lower than those in goods producing industries (other than agriculture). More importantly, rapidly expanding sectors such as retail trade and health care pay relatively low wages while the proportion of jobs in high-wage service industries in the infrastructure sector (transportation, communication, utilities) is declining (Table 6).

Table 6

Annual Wage By Sector, 1986

Sector	Annual Wage*
Agriculture	$11,623
Mining	33,418
Manufacturing	25,462
Construction	23,567
Transp/Comm.	28,703
Wholesale Trade	26,074
Retail Trade	14,042
Producer Services	24,632
Consumer Services	14,953
Health Care	21,609

* Wages and salary per full-time equivalent employee

This analysis is based on a review of service *industries* rather than service *occupations*. While employment in service industries is heavily weighted towards service occupations, employment in service occupations can be found in all industries.[6]

It has been suggested that the new jobs created in the US between 1972 and 1982 were high quality because managerial and technical occupations accounted jointly for more than 50 percent of new jobs. However, the same occupation may be compensated at different levels in different industries. Managers or salesmen are in service occupations that are paid much more in a manufacturing setting than in a retail trade setting. A shift to relatively higher wage occupations may be offset by a shift to lower paying industries, producing an overall expansion of low-wage employment.[7]

A shift to relatively higher wage occupations may be offset by a shift to lower paying industries, producing an overall expansion of low-wage employment.

There is currently great interest in the distribution of wages in the United States and in how that wage distribution is changed by the increasing proportion of service sector jobs. Much of this interest is provoked by the declining average real wage level. If that decline can be attributed to a shift to service jobs, then the expansion of services should be viewed with concern.

Table 7 shows the wage distributions for manufacturing and for the largest service subsectors: health care, producer services, retail trade, and consumer services. Service industries do not necessarily follow the same wage pattern. Retail trade and consumer services are disproportionately low paying.[8]

Table 7

Distribution of Employment by Wage Level, 1986

	Distribution of Full-Time Employment				
Weekly Wage Level	Mfg	Health Care	Retail Trade	Producer Services	Consumer Services
under $100	0.1%	0.3%	0.8%	0.4%	3.2%
$100 to 199	10.4	15.9	31.0	9.8	24.4
$200 to 299	22.2	29.2	28.4	25.4	28.6
$300 to 399	18.9	20.5	15.9	19.2	16.9
$400 to 499	16.5	15.8	10.0	12.7	10.6
$500 to 599	11.8	8.4	5.9	9.7	6.5
$600 to 749	9.3	5.0	4.0	8.6	4.7
$750 to 998	6.2	2.5	2.4	6.9	2.8
over $999	4.6	2.3	1.7	7.3	2.2
Total	100.0	100.0	100.0	100.0	100.0

If all workers were considered (rather than full-time workers only), this effect would become more pronounced: these sectors have high proportions of part-time (and especially involuntary part-time) employment. Health care employment is less concen-

Overall, service sector expansion appears to lead to declining wages and a shift to low-wage work.

trated at lower wage levels than retail trade or producer services but has far more low-wage employment than manufacturing. Producer services, on the other hand, has a relatively even distribution of jobs that closely matches that of manufacturing.

This analysis suggests that employment growth in retail trade and consumer services is growth of poorly paid work; accordingly, it depresses the average wage level. Half of all retail trade full-time employment pays below $13,000 per year. Health care is problematic. While it does create many well paid jobs, most health care jobs pay below average wages. Thirty-two percent of health care jobs pay below $250 a week or $13,000 a year.

Overall, service sector expansion appears to lead to declining wages and a shift to low-wage work. The degree to which service sector employment growth affects wage levels, however, depends on whether the relatively high or relatively low paying sectors are expanding the most. Several studies have shown that expanding industries (identified as those with increasing shares of employment) have paid far less than contracting industries in recent years. For instance, Mishel found that production and nonsupervisory workers in expanding industries earned one-third less per week (Table 8). Costrell (1988) found that expanding industries paid annual compensation $10,400 less than contracting industries paid.

Table 8

Earnings in Expanding and Shrinking Industries, 1979–85

	Average Hourly Earnings**	Average Weekly Earnings**
Expanding Industries*	$7.70	$257.73
Shrinking Industries*	$9.93	$402.30

* Expanding and shrinking defined by growing or declining shares of production or nonsupervisory employment in two digit industries

** 1985 Dollars

Another troubling aspect of the expansion of service sector employment is the expansion of part-time employment. The concern is not because part-time work is inherently "bad"; rather, far too many part-time jobs have been created so that many workers wanting full-time work have only been able to find part-time jobs. The service sector employs a higher percentage of part-time workers than the manufacturing sector (Table 9). However, this aggregation hides differences among the service industries (which, because of data limitations, must be examined using traditional industry breakdowns). Most of the expanding areas of the service sector disproportionately rely on part-time workers. In 1986, 18 percent of all workers were part-time workers. However, part-timers comprised 31 percent of the workers in the combined retail and wholesale trade sector, and 25 percent of the

workers classified in miscellaneous services (including those in industries such as health, business, professional, and legal services as well as consumer services). The exception is the finance, insurance, and real estate (FIRE) industries (which are the bulk of the "producer services" industry) in which only 11 percent of the workforce work part-time.

The creation of part-time jobs is problematic since, as mentioned above, they were filled by people wanting full-time jobs. In fact, part-time jobs were created at roughly the same pace as full-time jobs in the growing service industries. What has occurred is that a comparable proportion of jobs in these industries are part-time but the composition of people holding them changed: fewer voluntarily sought part-time work and more wanted full-time work. Thus, the employment expansion of these industries has been a major factor in increasing the proportion of workers overall who are working part-time involuntarily (Table 9).

The employment expansion of [service] industries has been a major factor in increasing the proportion of workers overall who are working part-time involuntarily.

Table 9

Employment Growth, Part-Time and Full-Time, 1979–86

Sector	Full-Time	Part-Time*		
		Total	Involuntary	Voluntary
Trade	26%	24%	61%	13%
Fin, Real Est, Ins.	38	25	71	16
Misc. Services	34	33	88	20
Durable Mfg.	-9	-7	21	-4

* Annual rates of growth

Other Factors Influencing Service Sector Growth

R&D in US Services

Because R&D expenditures in services are small relative to that of other sectors, a shift towards services lowers our investment in R&D. Estimates indicate that more than $19.3 billion was expected to be spent on R&D in the "trade, finance, and services" sectors and "miscellaneous and repair service" sectors in 1987. This expenditure is only 0.7 percent of combined sales, compared to 2.2 percent of sales spent on R&D by goods producers, 1.7 percent spent in agriculture, and 2.4 percent spent in mining. While together these two service categories do comprise 37 percent of sales, they represent only 20 percent of R&D spending.[9]

Out of 20 broad categories covering all industries, R&D as a percentage of sales ranges from 0.4 percent for transportation services to 6.1 percent in scientific and professional instruments. In four service categories—transportation, utilities, trade and finance, and miscellaneous and repair services—it is expected that less than one percent of sales will be spent on R&D in 1987.[10]

A high growth rate of investment in new technology does not necessarily correlate with high productivity growth.

Capital Formation and New Technology

A high growth rate of investment in new technology does not necessarily correlate with high productivity growth. For example, the stock of high-tech capital in the retail trade industry and most producers service industries is growing much faster than average. Moreover, the service sector as a whole owned 84 percent of the country's total stock of high-tech capital in 1985, with those industries generating significant employment owning 32 percent.[11] Yet, as we have previously seen, these service industries have had poor productivity performances in recent years (Table 10).

Table 10

Distribution and Growth of High-Technology Capital

	High-Technology Capital	
Sector	Shares by Sector, 1985	Annual Growth 1970–85
Real Estate	10.4%	8.0%
Finance	9.1	29.6
Other Producer Services	5.3	17.9
Health Care	3.2	9.8
Insurance	1.7	21.7
Retail Trade	1.7	16.2
Security and Commodity Brokers	0.2	24.6
Legal Services	0.2	21.5
All Industries	100.0	11.5

International Trade in Services

Few American jobs depend directly on trade in services because most US based service firms do overseas business through foreign affiliates rather than through direct exporting. In general, these foreign affiliates are staffed with local people, so they hire few Americans. Similarly, foreign investments in services in this country might negatively impact domestic businesses, but not necessarily US workers. In assessing the impact of trade in services on American employment, then, it is the *indirect* effects that must be considered.

A recent Office of Technology Assessment (OTA) analysis pointing to a much larger international trade in services than was previously recognized has fueled debate as to the future growth and effect of such trade. OTA's review suggests that services account for as much as a quarter of US exports—substantially more than the 17 percent indicated by Department of Commerce statistics. OTA also finds, however, that there is no reason to expect the service share of exports to grow faster than merchandise exports.[12]

Service exports are even less important when earnings on investment abroad are excluded. In 1987 the US exported $77.2 billion and imported $71.5 billion in services. This surplus of about six billion dollars in 1987 was higher than the billion dollar surplus in 1985.[13] However, the projected surplus in the service trade may only offset the deficit expected in net earnings on foreign investments.

There has been a rapidly increasing share of expenditures devoted to producer services and health care, without evidence that we have achieved the desired results.

Summary

This review of US private services has shown that employment growth has been concentrated in three areas: health care, producer services, and retail trade. In each area efficiency is declining. Wages are extremely low, particularly in retail trade, but also in some producer services. Inefficiency and low wages in rapidly growing sectors are not signs of a healthy economy. Indeed, this picture of service sector growth provides genuine reasons for concern.

1. There has been a rapidly increasing share of expenditures devoted to producer services and health care, without evidence that we have achieved the desired results. In spite of the increase in support services, the manufacturing sector has not improved its productivity relative to that of other nations. Despite spending about 11 percent of the total GNP on health care, more than virtually any other country, many health indicators fall below those of all our major trading partners. If we are not reaching our desired goals, we must ask if the services we are using are the most effective to help us achieve these goals, or if the resources could be better employed or allocated.

2. Declining efficiency in growing sectors is a cause for concern because it implies a need to devote more resources to obtain the same output. The consequences of declining labor productivity in producer services, retail trade, and health care, are rapidly rising prices and falling wages in these sectors.

3. Many of the new jobs being created are low-wage, low-skill jobs. In 1985, an average full-time employee in retail trade would have been able to support a family of three at a level barely above the poverty line. These retail trade jobs are almost a quarter of the new jobs created in the last 20 years. Large and rapidly growing industries in the producer service sector, like building services, also pay far below average wages. The increase in the numbers of jobs with wages both lower than and declining relative to the average wage is an unfortunate feature of today's service sector.

PART 2: SERVICE SECTORS ABROAD: COMPARISON OF US, FRANCE, JAPAN, AND GERMANY

The key features of the US service sector—high demand, low labor productivity growth, high job generation, and even the low wage levels—clearly cannot be the result of technical progress common to all maturing industrial economies.

The rise in the demand for services—particularly in the trade, producer services, and health care sectors—has been greater in the United States than in Japan, Germany, or France. Productivity is both higher and growing faster in services abroad than in the US. Together, these two factors have combined to generate service employment growth in the United States unparalleled in other countries.

The key features of the US service sector—high demand, low labor productivity growth, high job generation, and even the low wage levels—clearly cannot be the result of technical progress common to all maturing industrial economies. If they were, we would expect to see these features in other countries. We do not.

In order to understand which US employment and output changes have been the natural result of the maturing of an industrial economy and which changes have been the result of features unique to this country, it is instructive to look at other, similar economies. We will use this view of Japan, France and Germany not so much to understand those countries, but as a lens to see the patterns of the United States more clearly—a lens which will screen out the changes common to all economies, leaving the unusual features in sharp focus.

In general, while there is a positive relationship between the wealth of a country and the development of its service sector, the directness of this relationship has often been overstated. The US, with the highest GNP per capita, does have the largest service share of output (Table 11). The very poorest and least developed countries, those having the largest agricultural output share, generally do have smaller service sectors. However, it is by no means clear that service sectors uniformly expand as income grows.

Employment patterns also have differed among these countries. Between 1972 and 1985, US and Japanese employment grew significantly, creating 24.7 million new jobs here and 8.2 million new jobs in Japan. These jobs have been overwhelmingly in the service sector in both the US and Japan. In the same time period, there was little or no job growth in Germany and France. However, there has been a *structural shift* in all countries to an increasing share of jobs in services. From 1961 to 1985, service jobs as a percent of all jobs grew from 58.3 percent to 68.8 percent in the US, from 39.1 percent to 56.4 percent in Japan, from 38.9 percent to 59.3 percent in France, and from 37.4 percent to 53.4 percent in Germany.[14] Even given this structural shift, however, the service sector's share in all three foreign countries is still from 9.5 percent to 15.4 percent *below* that of the United States.

Table 11

Country Income Level and Service Sector Size

Country by Income Level**	Service Sector Share of Output*		Agricultural Share of Output
	1980	1985	1980
US	66.4%	66.7%	2.6%
Japan	57.1	54.7	3.7
Germany	57.7	59.5 (1984)	2.1
France	60.3	61.2 (1984)	5.0
Italy	62.3	57.7	6.8
Spain	56.3	58.4	7.1
Turkey	48.4	48.9	22.0
Greece	61.5	64.3	12.8
Portugal	50.1	–	13.5

* Service Sector includes all industries except agriculture, mining, manufacturing, and construction.

** Countries are ranked in descending order of GDP per capita using current purchasing power parity.

While France and Germany have been generating few jobs, labor productivity growth in the service sector has remained high. Japan has experienced both high job generation and high productivity growth.

Just as there have been significant differences among the four countries in employment growth, there have been differences in their labor productivity growth. While France and Germany have been generating few jobs, labor productivity growth in the service sector has remained high compared to the United States: 2.0 percent annually for France (1972–1984) and 2.1 percent annually for Germany (1972–1983), compared to 0.6 percent in the United States (1972–1983). Japan has experienced both high job generation and high productivity growth with a 2.5 percent annual labor productivity growth rate (1972–1984).

A View of Services in Four Comparable Countries

In order to see similarities and differences among these comparable countries' shifts to services, it is necessary to look at their patterns of employment, demand, and labor productivity growth in detailed service industries.

Output Patterns

US businesses use more support services than businesses in France, Germany or Japan (Table 12). We have a far larger trade sector than does either France or Germany, and, until recently, Japan. A higher proportion of total GDP is spent on health care in the US than in the other countries.

If Japan, our major trade competitor, does not use producer services as intensively as we do and is still more productive, then why do we rely so heavily on producer services?

Table 12

Output Shares and Growth in Service Industries by Country

Sector	Shares of Total Output, 1983*			
	US	Japan	France	Germany
Manufacturing	23.3%	31.7%	28.2%	31.5%
Trade	18.5	15.4	12.3	10.7
Producer Services	21.0	14.7	16.1	11.1
Consumer Services	8.3	12.3	7.8	11.7
Transport/Communication	6.5	6.0	6.2	6.0

	Output Growth, 1972–83**			
	US	Japan	France	Germany
Manufacturing	1.7%	6.1%	2.0%	1.2%
Trade	2.7	6.0	2.1	1.5
Producer Services	4.1	4.9	3.5	3.8
Consumer Services	3.0	3.6	4.3	3.9
Transport/Communication	3.0	3.3	3.6	3.6
GDP	2.2	4.1	2.3	1.9

* Shares of GDP

** Annual Growth Rates in Japan, 1972–84, France, 1975–84

The trade and producer service sectors are much larger relative to the manufacturing sector in the US than to those in any of the other countries. Japan, France, and Germany all have substantially larger manufacturing sectors. Overall, the output structures in other countries resemble one another more than they do the US.

The US producer services sector appears even larger when compared to the size of the related manufacturing sector. At 21 percent of GDP, producer services output in the US is 90 percent as large as manufacturing output. The German producer services sector, on the other hand, is only about 35 percent as large as the manufacturing sector (if data are put on a comparable basis). In Japan, the 14.7 percent share of the producer services sector is only 46 percent of manufacturing share. If Japan, our major trade competitor, does not use producer services as intensively as we do and is still more productive, then why do we rely so heavily on producer services?

Just as with the producer services sector, the US trade sector share is the largest among these four countries. The US trade sector contributed a much larger share of total output than the trade sectors in France and Germany during the entire 1972–1983 period. While the US trade sector was 17.6 percent of GDP in 1972, Germany's was 11.1 percent and France's was 12.6 percent. Japan's trade sector was only 12.0 percent of GDP in 1972, and has only recently approached the size of the US sector.

Moreover, it does not appear that Japan's, Germany's, or France's economic structures are becoming more similar to that of the United States. There has been a remarkable stability in the relationships among sectors during the 1972–1984 period. By and large sectors have maintained their share of GDP. They are not growing closer in pattern to the US. During this time, the Japanese economy grew by 61 percent; the French economy by 34 percent; the American economy by 20 percent (1972–83); and the German economy by 20 percent.

As a result of this overall stability, any structural changes stand out that much more. The rapid growth of the US producer services sector—and also of the Japanese trade sector—are the most noticeable changes during this period.

Because health care is creating such vast numbers of jobs in the United States, it is worth reviewing output differences in this sector among these four countries (using different data which combine the public and private sector). The United States health care sector contributes a higher percentage of total GDP, including both public and private spending, than do the health care sectors of the other three countries. While the US spent 10.8 percent of GDP on health care in 1983, Japan spent 6.7 percent; Germany spent 8.2 percent; and France spent 9.3 percent.[15] Private sector health care, which is disaggregated from consumer services only in the US and Germany, is about twice as large relative to GDP in the US. While it was 3.2 percent of GDP in 1972 and 4.2 percent in 1983 in the US, it was 1.8 percent in 1972 and 2.2 percent in 1983 in Germany.

Because of the difficulty in measuring health care output, it is also useful to look at some performance measures. By many standards, the United States is not achieving better results given this greater expenditure on health care. In 1980, male life expectancy was below that in the three other countries. Female life expectancy was below that in France and Japan, and only two and one half months longer than in Germany. By contrast, in 1950 both male and female life expectancy were higher here than in any of the other countries. Since 1970, infant mortality has been higher here than in France and Japan. Since 1981, it has also been higher than in Germany.[16] These performance measures suggest that the US may devote more resources to health care but still lags behind other countries in health outcomes.

The US may devote more resources to health care but still lags behind other countries in health outcomes.

Labor Productivity

The United States' productivity growth in services has been far less than that of other countries (Table 13). This is a major explanation for US service employment growth. With far less productivity growth the US has to add more employment in order to generate comparable growth in output. For example, if the United States' producer services sector's productivity had grown as fast as Germany's, three million fewer jobs (or 70 percent fewer) would have been created in the US. If US producer services

productivity growth matched even that of France, more than a million fewer jobs (or 26 percent fewer) would have been generated from 1972 to 1983. At Japan's rate, 2,371,000 (or 56 percent) fewer jobs would have been created. Low productivity growth has led to high job creation in the US not only in producer services but also in the trade and consumer service sectors.

Japan's trade sector has been able to create huge numbers of new jobs despite high productivity growth because of a high growth in demand.

Table 13

Productivity Growth in Service Industries By Country

Sector	Labor Productivity Growth, 1972–83*			
	US	Japan	France	Germany
Manufacturing	2.0%	5.9%	3.7%	2.9%
Trade	0.2	3.7	0.8	1.2
Producer Services	-0.5	1.8	0.5	2.5
Consumer Services	0.3	-0.2	0.6	1.5
Transp/Communication	2.3	3.1	2.6	4.0
Total	0.6	2.5	2.0	2.1

* Annual growth rates (Japan, 1972–84; France, 1975–84)

Employment growth is the result of changes in both productivity and demand. Japan's trade sector has been able to create huge numbers of new jobs despite high productivity growth because of a high growth in demand. It is, however, the only sector to do so in any country. Low productivity growth in France's producer, consumer, or trade sectors does not contribute to large numbers of new jobs because the demand for the output in these sectors has grown slowly. Germany's high productivity growth rates and its very low growth in demand have led to an absolute decline in employment.

Employment Patterns

A much larger share of American than of French, German, or Japanese workers hold jobs in the producer services and trade sectors.[17] From 1972 to 1983, manufacturing jobs have been lost in all countries except Japan, where only 379,000 new jobs were created (Table 14). Transport/communications, in all cases the smallest and most stable sector, has either lost employment or created few jobs. Three sectors—trade, producer services, and consumer services—are the source of the vast majority of new jobs in all countries, so we will look at them in the most detail.

The countries being compared have slightly different industrial classification systems. Japan's restaurant industry is included in consumer services rather than in trade. Similarly, German consumer services data include both business service and business real estate. Even without correcting for these dissimilarities, however, two factors stand out: the strikingly small job generation in Germany and the small job creation in Japan's producer services sector.

Table 14

Job Creation in Service Industries by Country

Sector	Net Employment Change, 1972–84*			
	US	Japan	France	Germany
		(000)		
Manufacturing	-613	379	-749	-1581
Trade	5,262	2,000	285	105
Producer Services	4,256	706	344	102
Consumer Services	3,664	2,827	549	398
Total New Jobs	15,754	7,840	502	-552
			1,005 (72-84)	
1984 Total Employment	103,289	45,926	22,015	18,073

* Job creation measured as net change in total employment (Germany, 1972-83, France, 1975-84)

The difference in employment patterns between the US and other countries, to a great extent, is the product of our trade deficit.

Both greater demand and lower labor productivity growth have contributed to the large gains in US employment. The difference in employment patterns between the US and the other countries, to a great extent, is the product of our trade deficit. If we had no deficit, we would gain about three million manufacturing jobs and our trading partners, principally Germany and Japan, would lose those jobs. Correcting the current trade imbalances among the US, Germany, and Japan would create much more similar patterns of sectoral output.

Two sectors in the United States stand out as different from other countries. The US producer services sector's share of total employment is about twice as large as Germany's and Japan's, and 1.4 times the relative size of France's (Table 15). The trade sector's share in the United States is rivaled only by Japan's.

As has been noted, part-time work in services does not appear to be the source of this difference in employment growth. Although the United States historically has had a lower average number of hours worked per employee and has slightly increased the use of part-time workers in the last 15 years, France and Germany have been increasing their use of part-timers faster. By 1985, all three countries had close to the same average weekly hours worked in services. Even Japan has increased its use of part-time workers in services and is becoming comparable.[18]

A shift in final demand from investment towards personal consumption will lead to a larger service sector.

Table 15

Employment Shares and Growth in Service Industries by Country

Sector	Shares of Total Employment, 1983			
	US	Japan	France	Germany
Manufacturing	19.0%	27.6%	25.9%	35.2%
Trade	22.8	18.3	14.6	14.3
Producer Services	11.2	5.1	8.0	3.5
Consumer Services	15.1	16.9	10.7	7.6
Transport/Communication	4.2	6.8	7.2	6.1

Sector	Employment Growth, 1972–83*			
	US	Japan	France	Germany
Manufacturing	-0.3%	0.2%	-1.7%	-1.7%
Trade	2.5	2.3	1.3	0.3
Producer Services	4.6	3.1	3.0	1.3
Consumer Services	2.7	3.8	3.7	2.4
Transport/Comm.	0.7	0.2	1.0	-0.4
Total	1.6	1.6	0.3	-0.2

* Annual growth rates (Japan, 1972-85, France, 1975-84)

Explaining the Employment Differences[19]

Many factors contribute to the differences observed among these countries in demand and labor productivity trends (the sources of the employment effects) in service industries. The major factors are considered here in order to better identify the similarities and differences among these countries.

Consumption Levels

The allocation of GNP between consumption and investment strongly affects the relative size of the service sector. This is because consumers purchase proportionately the same amount of services and manufactured products, but investment goods (machinery, computers, vehicles, and so on) consist primarily of manufactured products. As a result, a shift in final demand from investment towards personal consumption will lead to a larger service sector. This is one of the reasons for US service sector growth. For the last 20 years, the US economy has experienced lower rates of investment and savings than the economies of other industrialized countries (Table 16).

Table 16

Investment and Savings by Country

Investment Rate*	US	Japan	France	Germany
1964	18.1	43.0	22.9	26.6
1974	18.0	34.8	24.3	21.7
1980	18.5	31.6	21.9	22.7
Savings Rate*				
1964	9.1	18.3	15.3	18.9
1974	7.8	23.0	14.1	14.1
1980	5.0	18.3	10.7	10.1

* Shares of GDP

Private consumption accounts for a higher percentage of GNP in the US than in other countries.

Private consumption accounts for a higher percentage of GNP in the US than in other countries (Table 17). This is partly due to the rapid expansion of consumer debt in the US. In fact, consumer debt in the US is at levels unknown in other countries. After a period (1965–1981) during which the ratios of total debt/GNP remained constant at 1.4, debt is now 1.8 times as large as the US GNP—the highest ratio since the Great Depression. The mirror image of the increased consumption is the shrinkage of the savings rate, which fell to a historical low during 1985–1986, at the same time that consumer debt reached a historical high.

Table 17

Consumption Shares by Country

	Consumption Share of GDP		
Year	US	Japan	Germany
1968	60.1	57.4	53.4
1973	61.7	59.4	54.0
1977	63.7	59.7	56.7
1984	65.7	57.0	55.0

US fiscal policies have reinforced this trend toward increased private consumption by allowing a deduction from federal income tax for interest charges on borrowing. The large US Federal budget deficit also played an important role in increasing aggregate demand and consumption (Table 18). European governments, on the other hand, have had contractionary fiscal policies.

Service sector wage levels in the US are much lower relative to manufacturing than in Japan or Germany.

Table 18

Effect of Fiscal Policies on Demand, 1979–84

	Fiscal Balance as Share of GDP		
	US	France	Germany
1979	1.3%	-1.0%	-3.3%
1984	-1.3	-0.2	0.8
	Fiscal Policy Effect on Aggregate Demand, 1979–84		
Change, 1979–84	2.6%	-0.8%	-4.1%

Finally, US tax policy under the 1986 Tax Reform Act (implemented in January 1987), further reinforced the trend toward increased consumption by reducing tax deductions for investment and transferring the corresponding amount (roughly $100 million) to individuals through a reduction in personal tax rates.

Wage Levels

The level of service sector wages is an important part of the explanation of both the growth of service employment and the growth of services (rather than manufacturing) in the US.

Service sector wage levels in the US are much lower relative to manufacturing than in Japan or Germany (Table 19).[20] If US trade sector wages were the same percentage of Japanese manufacturing wages as Japanese trade sector wages are of manufacturing wages, they would rise from $15,000 a year to $21,600 (in 1983 dollars). If US producer services sector wages were as high as Japanese producer services wages (relative to manufacturing), they would increase from $22,500 to $35,500 (in 1983 dollars).

Table 19

Services Industry Wages Relative to Manufacturing, 1983

	Industry Wage Relative to Manufacturing		
Sector	US	Japan	Germany
Trade	57%	81%	75%
Producer Services	84	133	120
Consumer Services	57	78	71
Transport/Communication	114	127	100

In stark contrast to the US, Japan's producers service sector is the highest paid sector. This is consistent with its high labor productivity growth and relatively small labor force. In both

countries, wages are lowest in the consumer services sector. Trade sector wages are low and falling in both countries.

In general, compared to the US, service sector wages in Japan and Germany are much closer to (or above) manufacturing wages. This is not surprising because laws in other countries peg the minimum wage much closer to the average manufacturing wage than do the US laws.

The US labor market has unique characteristics that have encouraged the development of labor-intensive production processes such as services.

Labor Market Characteristics

The US labor market has unique characteristics that have encouraged the development of labor-intensive production processes such as services. Compared to other industrialized countries, US labor costs have grown far more slowly than capital costs (Table 20). The US has lower mandatory additional costs related to wages (for example, social security and retirement costs) than other countries. Compared to other countries, it is an easy, inexpensive option to hire or to lay off workers. Plus the US market is more "flexible." Each of these labor market characteristics is examined in greater detail in this section.

Table 20

Changes in Labor Costs Relative to Capital Costs, 1964–82

	Labor/Capital Cost Ratio (1964 = 100)		
Year	US	France	Germany
1964	100.0	100.0	100.0
1974	113.4	172.7	182.3
1982	144.4	223.7	206.3

	Mandatory Labor Costs as Share of Wages			
	US	France	Germany	Japan
1979	7.4	22.1	18.2	6.9

The greater degree of both wage and labor flexibility within managerial discretion in the United States promotes employment growth in the US service sector. If wage flexibility is defined to be that portion of wages which may be varied at the employer's discretion, then the US environment lies between those of France and Japan. In France, a small proportion of total compensation is discretionary, while in Japan, employers offer a special reward system based on bonus payments related to company earnings. In the US, while bonus practices and profit-sharing exist at the managerial level, they rarely have been extended to blue-collar employment. US wage flexibility comes from layoffs and subsequent rehiring of previously dismissed people, allowing for a sub-

stantial decrease in wage payments during an economic slowdown.

The arrival of the baby boom generation . . . further depressed the wage level.

The arrival of the baby boom generation (people born between 1946 and 1964) in the US labor market resulted in an increase in the number of young, nonskilled, and inexperienced workers in an already crowded labor market. They were well suited to the service sector. This influx of workers further depressed the wage level, as illustrated by the ratios of the earnings of people aged 20–24 years relative to those aged 45–54 between 1956 and 1980 (Table 21).

Table 21

Falling Relative Wage of Young Workers, 1956–80

	1956	1968	1980
Young Workers' Wages Relative to Older Workers' Wages*	75%	68%	54%

* Average earnings of workers ages 20–24 divided by average earnings of workers ages 45–54

In addition, US female labor force participation rates increased from 43.3 percent in 1970 to 52.6 percent in 1982. As a result, the proportion of women and young workers in the labor force increased substantially (Table 22).

Table 22

Youth and Women in Labor Market, 1955–85

	Share in Total US Workforce				
	1955	1970	1975	1980	1985
Young Workers*	15.0%	21.6%	22.1%	23.7%	21.3%
Adult Women**	25.2	28.3	29.5	31.6	34.3
Total	40.2	49.9	51.6	55.3	55.7

* Ages 16–24
** Age 24+

Occupational features distinguishing the US from other comparable countries include heavy reliance on engineers and managers (Table 23). Other industrialized countries employ proportionately fewer managers and engineers in the service sector, as well as in other parts of the economy.

Table 23

Occupational Composition by Country

	Shares of Total Employment		
Service Sector	US	Japan	Germany
Managers, Engineers	33.2%	18.0%	25.1%
Clerical, Sales	31.0	46.9	39.9
Operative, Other	35.8	35.1	35.0
Primary and Secondary Sectors			
Managers, Engineers	18.8%	5.2%	11.0%
Clerical, Sales	12.9	13.9	17.4
Operative, Other	68.3	80.9	71.6
	100.0	100.0	100.0

Labor force adjustments in the US have exceeded those in other countries, as reflected in a comparison of average workforce variations during the last three major recessions.

Work-time arrangements are more flexible in the US where work schedules may be varied throughout the year (seasonally); by the week (three or four day weeks, Saturday and Sunday work); or by day (day or evening shifts). The lack of specific rules is useful in the service sector because profitability and customer service often require 24 hour operation. Flexible work arrangements are also important because service industries cannot maintain inventories, but must adjust the workforce to the day to day activity levels.

The US has a high proportion of the workforce in part-time jobs. In Japan, Germany, and France, however, part-time work has been rapidly increasing in importance (Table 24). As a result, the differences in part-time work across countries have lessened. Nevertheless, the greater availability of part-time workers in the US has contributed to the rise of service sector employment.

Labor force adjustments in the US have exceeded those in other countries, as reflected in a comparison of average workforce variations during the last three major recessions (Table 25).

There are drawbacks to these short-term flexibilities. Workers who are hired for a short period will lack training, and may not be committed to their jobs. These two factors may contribute to low productivity. These drawbacks significantly affect manufacturing much more than services. Many service jobs use only limited skills, so that lack of training does not affect service output. The segment of the service industry composed of professional, white-collar workers (consultants, lawyers, or accountants, for example) are already trained and are not subject to the downside of labor flexibility since they are often co-owners or managers for the firms in which they work. These professional workers, moreover, have long term commitments to their professions so that they maintain their skills even if they move from

Services are able to take advantage of the special type of labor flexibilities in the US labor market.

employer to employer. To a great extent, therefore, services are able to take advantage of the special type of labor flexibilities in the US labor market, and apparently do not suffer from its drawbacks.

Table 24

Part-time Employment Growth and Shares by Country

Country	Time Period	Employment Growth (000) Total	Part-Time	Share of Part-Time in Total Growth
US	1973–1981	12,432	2,158	17.4%
	1982–1985	7,625	509	6.7
	1973–1985	20,057	2,667	13.3
Japan	1973–1981	4,160	1,150	27.6
	1982–1985	2,230	550	24.7
	1973–1985	6,390	1,700	26.6
France	1973–1981	1,033	540	52.3
	1982–1985	–78	372	N/A
	1973–1985	955	912	95.5
Germany	1973–1981	415	685	165.5

	Share of Part-Time in Total Employment		
	1973	1979	1983
US	14.0%	14.4%	14.4%
Japan	7.9	9.6	10.5
France	7.2	8.2	9.7
Germany	10.1	11.4	12.6

Table 25

Labor Force "Flexibility" by Country

	Labor Force Adjustment in Recent Recessions*
US	5.0%
Japan	1.9
France	1.9
Germany	3.2

* Labor force adjustment is measured as the average cyclical amplitude – the percentage above trend level at peak plus the percentage below trend level at trough in civilian employment – over the 1969–71, 1973–75 and 1979–82 periods.

Capital Intensity

While traditionally labor-intensive, services are becoming more capital-intensive in all four countries, with capital per worker growing twice as fast in Japan and Germany as in the United States. This difference can only partly be explained by the statistical effect of capital equipment in other countries being leased to manufacturing firms but owned by financial firms and thereby counted as service sector capital. It is the introduction of new, relatively more capital-intensive services, as well as new technologies being applied to existing services, that explains the greater investment abroad.

Services are becoming more capital-intensive in all four countries, with capital per worker growing twice as fast in Japan and Germany as in the United States.

The proportion of total fixed investment undertaken by services increased in the early 1980s (Table 26). That proportion would, of course, be expected to rise just to hold relative investment per employee steady, given that the service sector proportion of employment has increased. However, investment has grown faster than employment so that capital per worker has been rising.

Table 26

Relative Importance of Service Sector Investment

	Service Share of Total Investment*			
	US	Japan	France	Germany
1970–1972	24.8	22.1	23.8	23.0
1980–1982	38.1	23.2	28.5	30.5

* Share of services in total gross fixed investment, excluding dwellings

Profitability and Risk

Investors in US companies are more sensitive to the risk of high debt/equity ratios and are paid higher returns on investments than are investors in Japanese and German firms (Table 27). This high cost of capital may lead investors to abandon potentially profitable projects because they are perceived as too risky. The cost of capital, therefore, influences the size and duration of projects which are accepted by investors in US firms. Typically, US investors want payback periods not exceeding two or three years, forcing managers to focus on quarterly or monthly results. These characteristics of investment in US firms favor the development of services, because services generally require a smaller initial investment and have shorter recovery periods and higher returns than long-term industrial projects.

The concentration of US employment growth in services is due to both high demand for services and the comparatively weaker productivity growth in service production.

Table 27

Financial Indicators by Country, 1972–82

	US	Japan	Germany
Debt/Equity Ratios	30.0%	66.0%	64.0%
Cost of Capital	16.6	9.0	9.0

Summary

The US has had lower productivity growth in trade and producer services than all three other countries, and lower labor productivity growth in consumer services than Germany and France. In almost every case, the US productivity growth rates are much below their rates. The US has a much smaller manufacturing sector, and much larger trade and producer services sectors. It is this combination that has produced such profound employment growth in services.

Other factors have created conditions favorable to the expansion of US service employment. Demand for services has increased due to increases in the labor force, a shift towards personal consumption and away from investment, increases in consumption debt, and the growth of the trade and federal budget deficits. US labor market characteristics favorable to the development of service jobs, such as flexibilities regarding wages, hiring and layoffs, and work schedules and rules, contributed as well. In addition, there was a large available reserve of workers likely to accept flexible employment conditions, low salaries, and jobs with few qualifications.

The concentration of US employment growth in services is due to both the exceptionally high growth in demand for services in this country and the comparatively weaker productivity growth in service production. This differential growth, reflected in both higher levels of service sector employment and faster growth rates, results from the particular characteristics of the US markets for capital and labor reviewed in the next section.

PART 3: EMPLOYMENT GROWTH IN THE US SERVICE SECTOR: THREE QUESTIONS

Given the examples of other comparable countries, it is hard to argue that the extraordinary US demand for services, the low wages, or the low productivity are "natural" phenomena, reflecting our having "ascended" to a service economy. Instead, the origins of service sector growth must be explained by factors unique to the United States.

Given the examples of other countries, it is hard to argue that the extraordinary US demand for services, the low wages, or the low productivity are "natural" phenomena.

I. Why is the US demand for services so high?

The United States has the ideal environment to foster the development of a large service sector. But the service sector has not grown evenly: some industries exploded with growth, while others have practically disappeared. In order to understand recent changes in the US economy, it is necessary to look at the part of the service sector that has shown the greatest growth, in particular the producer services industries.

Producer Services

Three explanations for the growth in demand for producer services have been suggested.

1. The "disintegration" of *manufacturing* firms has transferred service functions previously provided internally to service firms and hence to the service sector.

2. Increasing complexity, size, and risk in the business environment have required the greater use of services.

3. New technology has contributed to the invention of new services, and hence more demand.

Each explanation provides part of the pattern. However, even if these factors are the forces at work, the increasing demand for services may not be the *necessary* or optimal response to the changes in the business environment.

Firm Disintegration

The first explanation ("firm disintegration") is that functions previously provided inside a manufacturing firm are now being contracted out to service sector companies: production activities and employment from the manufacturing sector are transferred to the service sector. The result is that our statistics capture an artificial increase in service sector output and employment.

The growing size of the economy may create new economies of scale in services that make firm disintegration an efficient strategy; there are now enough sites to service (buildings to clean or firms in need of accounting help) close together to make it possible for a service company to have enough work. Plus, a riskier world has forced companies to subcontract these services in order to maintain only their most profitable central functions.

Although firm disintegration has occurred to some extent, it seems unlikely that it is the major factor in service sector growth.

Although firm disintegration has occurred to some extent, it seems unlikely that it is the major factor in service sector growth. First, a review of the fastest growing service industries shows an increasing use of new services, not the displacement of functions from the manufacturing to the service sector. Computer services are new. The growth of building services and architecture and engineering services is primarily a response to real estate industry changes, rather than a shift of cleaning chores from plant employees to outside contractors. Bookkeeping and planning are performed inside manufacturing organizations no less today than in 1967. The accounting firms and management consultants supplement but do not replace internal support functions. Analyses by Bureau of Labor Statistics economists Ron Kutscher (1988) and John Tschetter (1987) of changes in occupational patterns in manufacturing and services confirms that "disintegration" or "unbundling" is not the cause of rising producer service output and employment.

Second, if firm disintegration led to more productive organizations, we would expect Japanese and European firms to be participating in this reorganization. The size requirements for the economies of scale needed for this growth in self-supporting services are no doubt met by these other economies as well. Yet, we have not seen an explosive growth of producer services abroad.

In fact, some separating and specializing of functions is occurring, but it is not new and it is not the major source of producer services growth. The farmer shod his own horses until the town got big enough to support a blacksmith and he got busy enough to use him. Just like the businessmen of today, the farmer used the services of the blacksmith when it was a better use of his resources, his time and money, in this case. There is no reason to think this process has dramatically sped up. Rather, it has probably been a source of producer services growth in all countries during the entire period, but it is not an explanation of the dramatic growth in the United States in the last 20 years.

Increasing Complexity and Risk

A second explanation suggests that the growing complexity of a maturing economy requires greater and different services in order to sustain the production of goods and the distribution of those goods to the consumer. The increasing size of the marketplace is one factor. Suburbanization and the geographic spread of population have increased the difficulty of marketing. The need for markets to be national, rather than local or regional, to sustain economies of scale in production is part of this explanation. The growth in international marketing, an extension of the growth in national marketing, requires more and different services.

Difficulties created by increasing size are compounded by increased risk and complexity arising from: shorter product lifecycles, more complicated financing and management arrange-

ments, regulation, deregulation, problems of producing and selling in many countries, and the increasing impact of uncontrollable external forces such as oil shocks or currency shifts, and the list goes on. These changes have made the world a more difficult place in which to do business. In response, businesses have turned to support services for help. These changes have been more in evidence in the last 20 years, and may well be the source of much of the recently increased demand for producer services.

The world also has grown in size and complexity for German, Japanese, and French businesses, however. They are as vulnerable to oil shocks and the difficulty of selling in foreign markets as we are, but they use far fewer services. The increasing complexity and risk in the business environment may explain the growth in producer services in the United States. But if so, using these services is a solution that only Americans are adopting to real problems. If we are responding differently than other comparable countries to the changing business environment, we must ask if this is one reason that we are less successful.

If we are responding differently than other comparable countries to the changing business environment, we must ask if this is one reason that we are less successful.

New Products

A third explanation for the increasing demand for producer services is that new, attractive services have been invented. In particular, new information technology has contributed to the creation of new services: automated teller machines, international financing, computer data processing, and desktop publishing are all prime examples. This growth is a part of the surge in producer services.

But which services are available and in use in Japan, France, and Germany? These new services could be available abroad: new information technology is as readily available in Japan, Germany, and France as it is here. Given the size of other countries' producer service sectors, these new services probably are not being used extensively, if at all. If so, why are we using them to support our businesses, and why has this development not led to comparatively higher productivity growth in manufacturing or in the economy as a whole in the US?

Other Growing Service Sectors: Health Care and Retail Trade

Two other sectors, health care and retail trade, have been major contributors to the overall growth of services in the US.

The US health care sector has grown dramatically compared to other wealthy countries. In one sense it is clear why: the population is aging. New treatments create high expectations. The American ethos suggests that all of us can participate in the medical miracle.

We produce more and use more services than other countries do. It is not at all clear that we are better off as a result.

At issue is not the social decision to spend large amounts on health care. Good physical health for citizens is a perfectly reasonable social goal and too many people are without adequate health care. Instead, the issue is the effectiveness of our health care delivery system. Indicators show that the citizens of Japan, Germany, and France are healthier than we are, presumably because they have more effective health care systems.

Why is the US retail trade sector so large? While some growth is due to the recent increase in restaurant eating, the sector was large before that increase. Without further analysis that breaks down the trade sectors in all four countries (into the wholesale trade, retail trade, and restaurant components), it is difficult to know why this sector has grown so much.

Some aspects of US retail trade are different from other countries and may be the source of the different output and employment patterns. Twenty four hour a day, seven day a week shopping is an American phenomenon not seen in other countries. The boom and bust consumer sales cycle created by using sales to bring consumers into the stores is also a distinctly American retail phenomenon. Plus, informing consumers has shifted from the store clerk to advertising; store personnel no longer know their merchandise. Passing judgment on whether these changes benefit or harm consumers is not easy. In any case, these differences (combined with the emphasis on consumption) may be at the root of increased US retail trade demand.

In the US, then, we produce more and use more services than other countries do. It is not at all clear that we are better off as a result.

II. Why do we have such low labor productivity growth?

Even if we wanted the service sector output we are generating, we would still want to produce that output as efficiently as possible. Many factors contribute to labor productivity growth: capital investment, the skills of the workforce, and the organization and management of the operation. The availability of baby boom labor and the potential for labor flexibilities in the US, coupled with the unusually high cost of capital, have led US service industries to employ more low paid, less productive workers rather than fewer higher paid, more productive workers along with greater capital investment.

We should worry about low productivity growth. Declining productivity means using more resources to produce the same services. Someone will be charged for the inefficiency. Either the service user will pay more, or the service worker will be paid less. Neither development is satisfactory; today both are happening.

Low labor productivity growth in US services is not simply the result of too little capital investment. Huge amounts of money have been spent already without improving productivity growth.

The lack of R&D in services may indicate that a lot of money is being spent without much thought or planning. This combination of dollars spent for investment but not for R&D (rather than a lack of capital investment) may be part of the problem.

With real weekly earnings falling since the early 1970s, declining wages may be pushing industries towards using labor-intensive production processes. In retail trade, the particularly low-wages that commonly are paid may be driving the sector towards production processes using less skilled (hence less productive) workers. Similarly, part-time workers, heavily used in retail trade, are often being employed to avoid paying the fringe benefits of holidays, overtime, pension, or health care benefits. Greater use of part-time workers in services increases the gap between the weekly and hourly wage levels of service and manufacturing workers and contributes to declining labor productivity; part-time labor is generally less skilled and less productive than full-time labor. Choosing production processes based on availability of low-wage workers has not been a successful strategy for this country, given that comparable sectors in other countries have performed much better in terms of productivity growth.

Declining or low productivity in services lowers our standard of living by depressing wage growth in those industries and/or by accelerating price increases for services.

III. Is Service Sector growth contributing to a declining standard of living?

The answer to this question is complex. Overall, the service sector pays lower wages than the goods producing sector. Millions of people are in the growing industries of retail trade or building services, and earn less than the wages necessary to support a satisfactory standard of living. Such a large proportion of American workers are in these low paid jobs that we may be creating an entire group of working Americans unable to support themselves adequately on full-time earnings. Clearly, increasing low-wage employment contributes to a decline in the standard of living. However, millions of new jobs in health care, legal services, insurance, advertising, accounting, and computer services pay relatively well. Policy makers must recognize that the service sector is not a homogeneous, single industry with a single employment pattern. Even this does not adequately answer the question, however. Businesses in this country, including manufacturing firms, are using far more producer services than businesses in other countries. If this usage is a misallocation of resources—a waste of time, money, and effort which does not contribute to improved productivity—then it reduces our standard of living because it reduces the productivity of *all* workers, including manufacturing workers. Moreover, declining or low productivity in services lowers our standard of living by depressing wage growth in those industries and/or by accelerating price increases for services. If the latter occurs, a lower standard of living for all consumers of services results.

APPENDIX: COMMENTS ON THE DATA

Issues of output data measurement are of growing concern as those sectors of the economies of all industrial countries that are most difficult to measure, the service sectors, take on increasing importance. The absolute level of output may be mismeasured. Even so, since methods of measurement have been consistent over time the trends in the data are still reliable. Similarly, methods of measurement, with their attendant weaknesses, tend to be similar across countries, leading towards comparability, if not absolute accuracy (see accompanying paper by Thurow for further discussion of measurement issues). Given the limitation of these and any data, our analysis can only be a starting point to a broader review and consideration of changes in the economy.

Part 1

The data used are from the Commerce Departments' National Income and Product Accounts and the BLS's establishment employment series unless otherwise noted.

Producer services includes all industries in "finance, insurance, and real estate" (sic code 6), "business service" (sic code 73), "legal services" (sic code 81), and "miscellaneous and professional services" (sic code 89).

Consumer services include all "services" (sic code 7 and 8) except "health," "business," "legal," and "miscellaneous and professional."

Financial services include banks, other credit institutions, and holding and trust companies. Insurance services include both insurance carriers and insurance agents.

In general, employment is measured in full-time equivalents (FTEs). Number of workers, including all persons whether full or part-time, is not an accurate presentation of the real number of people sustained by an industry. Output per FTE has also been used as the measure of labor productivity rather than output per hour. This was chosen both for comparability to employment data and because of the variability in FTE hours per industry. Output per FTE measures an industry's ability to support an employee given industry standards of full-time hours.

Part 2

The data used are from OECD National Accounts 1972–1984, Volumes I and II.

The OECD data have two inconsistencies in the aggregations. In the German data, business real estate and business services are included in consumer services, not producer services as they are in other countries. And in the Japanese data, restaurants and hotels are included in consumer services rather than in trade services. These inconsistencies in the aggregation require some

estimated corrections to see the real differences in patterns. The numbers given, however, are uncorrected.

Trade includes retail trade, wholesale trade, restaurants and hotels. Producer services include finance, insurance, real estate, and business services. Consumer services include community, social, and personal services. Transport/communication includes transportation, communication, and storage.

The Relationship between Manufacturing and Service Output Measurement Problems

Recent research has shown that new measurement problems have led to an overstatement of manufacturing output growth since 1973 (Mishel, 1989). These findings do imply that service sector output growth may have been understated in the same time period. This is because the BEA methodology for determining the sectoral composition of output is independent of BEA's determination of *aggregate* private sector output (which is derived from reliable expenditure data). As a result, since the aggregate is fixed, an overstatement of output in one sector implies an understatement in another sector. If manufacturing output is overstated then output being attributed to manufacturing may be more properly attributed to services. However, the amount of implied understatement of services may be small. First, some output being attributed to manufacturing probably belongs in the construction sector, an industry where most analysts believe productivity growth has been vastly understated. Second, since services are 2.6 times the size of the manufacturing sector any overstatement of manufacturing output implies a much smaller understatement of services. For instance, a five percent overstatement of manufacturing output in 1987 (equal to 42 billion 1982 dollars) implies only a 1.9 percent understatement of private services output. If the manufacturing output overstatement is coupled with a ten percent understatement of construction output (or 18 billion 1982 dollars) then the implied private service output understatement is just 1.1 percent.

TABLE SOURCES

The following abbreviations are used throughout the sources listing.

NIPA: National Income and Product Accounts, historical data in Bureau of Economic Analysis (1986).

OECD: Organization for Economic Cooperation and Development.

SCB: *Survey of Current Business*, of the Bureau of Economic Analysis, US Department of Commerce.

1. NIPA. Table 6.2, pp. 254–255. *SCB* (July 1987), Table 6.2, p.57.
2. NIPA. Table 6.7B, pp. 276–277. *SCB* (July 1987), Table 6.7B, p.60.
3. NIPA. Tables 6.2, 6.7B, pp. 276–277. *SCB* (July 1986), Tables 6.2, 6.7B.
4. NIPA. Table 6.7B, pp. 276–277. *SCB* (July 1986), Tables 6.2, 6.7B.
5. NIPA. Tables 6.1, 6.2, 7.5, pp. 252–255, p.331. *SCB* (March 1986) p.106 and (July 1986) p. 63.
6. *SCB*. (July 1987) Table 6.8B.
7. Unpublished BLS Table A-20, based on the Current Population Surveys of 1986.
8. Mishel and Simon (1988).
9. Tilly (1988).
10. Roach (1987). His figures derived from the industry–commodity capital stock matrix of the US Dept. of Commerce.
11. OECD (1986d) and (1986e).
12. OECD (1986e) Table 12, pp. 49, 77, 217, 241.
13. OECD (1986e) Tables 12 and 15, pp. 49, 53, 77, 81, 217, 219, 241, 245.
14. OECD (1986e) Table 15, pp. 53, 81, 219, 245.
15. OECD (1986e) Table 15, pp. 53, 81, 219, 245.
16. OECD (1986e) Table 15, pp. 53, 81, 219, 245.
17. OECD (1986e) Capital Rate is Gross Fixed Capital/GDP, Savings Rate is Net Savings/GDP.
18. OECD (1986e).
19. OECD (1984b).
20. OECD (1984b).
21. OECD (1986e) Table 13, pp. 50, 78, 242.

22. OECD. (1986b) p. 81.

23. Russell (1982).

24. BLS (1986).

25. OECD (1984a) and (1984b) p. 59.

26. OECD (1985b).

27. OECD (1986b) p. 22.

28. Green (1985).

29. Ellsworth (1986).

30. Green (1985) p. 80.

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ENDNOTES

1. See the Appendix: Comments on Data for discussion of measurement problems related to service sector output.
2. Battelle Memorial Institute (1986, pp. 21–22).
3. Gorman (1985, pp. 36–55).
4. Disaggregated data for years 1948 to 1985.
5. Labor productivity is measured as output per full-time equivalent. Published data on hours worked (a preferred measure of work effort) are not available on a disaggregated basis for use in developing productivity rates for our categories.
6. OECD (1986b, p. 95).
7. Mishel and Simon (1988).
8. If all workers were considered (rather than full-time workers only), this effect would become more pronounced: These sectors have high proportions of part-time (and especially involuntary part-time) employment.
9. Battelle Memorial Institute (see above).
10. Battelle Memorial Institute (see above).
11. Roach (1987).
12. Office of Technology Assessment (1987).
13. Office of Current Business (July 1988, p. 69).
14. OECD (1988).
15. OECD (1985c, p.12).
16. OECD (1985c, p.131).
17. In this section, employment data are for *all* employees (not full-time equivalents).
18. Galibert and Le Dem (1986, p. 14).
19. I am indebted to Jean Beau for his work analyzing the sources of employment differences between the US and France, Germany, and Japan.
20. Data for France are not available.

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